

Build Offer Recommender System for Telecom Products/Services

Business Overview

Offer recommendation in the telecom industry refers to the process of suggesting personalized offers to customers based on their usage patterns, demographics, and other relevant factors. Offering recommendations in the telecom industry is crucial for improving customer satisfaction and increasing revenue. By using advanced algorithms and big data techniques, telecom companies can provide customers with relevant and valuable offers, leading to higher customer loyalty and long-term growth.

Why is Offer Recommendation important?

- Increase customer satisfaction: Offer recommendation allows telecom companies to understand their customers better and provide them with relevant and valuable offers, leading to higher customer satisfaction.
- Increase revenue: By providing customers with relevant and valuable offers, telecom companies can increase their revenue through increased customer spending and reduced churn.
- Improve customer loyalty: By providing personalized offers to customers, telecom companies can create a better customer experience and build stronger relationships with their customers, leading to higher customer loyalty.

Why Data Science?

Telecom companies have vast customer data, including usage patterns, billing history, and demographic information. However, they struggle to use this data effectively to increase customer satisfaction, loyalty, and revenue. The goal of the offer recommendation system is to use this data to suggest relevant and valuable offers to

customers, resulting in increased customer satisfaction and revenue for the telecom company.

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Aim

- 1. To perform problem-specific EDA**
- 2. To understand offer recommendation and why it is important?**
- 3. To build an offer recommendation system for telecom company**

Data Description

The telecom company from the US provided the data with 98230 customers over 73 unique features. The features are related to customer demographics, personal information, and usage.

Tech stack

- Language - Python, SQL
- Cloud - AWS
- Libraries
 - Pandas: For Data Analysis and Manipulation
 - Pyodbc : For connecting with aws cloud to fetch the data
 - Numpy: For performing mathematical operations over data
 - matplotlib, seaborn: For Data visualization
 - scikit-learn: For model building

Approach

In this project, we will build a collaborative-filtering system based on the user. To simplify, here's the logic of what we'll build:

1. We'll build an algorithm to identify who identifies, for customer A, who are the n-most similar customers;
2. We'll use a churn-rate approach to identify, among similar customers, what is the most successful offer;
3. We will then choose the most successful offer for our customer, A.

We'll train this algorithm on the part of the dataset of customers who have received the offer (have A,B,C,D,E,F,G,H,I or J) in their 'offer' field. The idea is to apply that to the 'No Offer' group.

We are treating this problem as an unsupervised learning problem. This means that, in practice, we don't have a way in this dataset to validate if what we did is 'right' or 'wrong'.

In real life, the approach here would be to test this algorithm with real customers to see if this improves churn.

Project Takeaways

1. How to load data from AWS SQL using pyodbc and pandas
2. Exploratory Data Analysis
3. Categorical Feature Encoding using Labelencoder
4. Feature Engineering
5. Understanding Cosine Similarity, Manhattan distance, Euclidean distance
6. How to choose a distance metric for a specific problem?
7. What is the minimum threshold parameter?
8. Build a collaborative offer recommendation system
9. Bootstrapping the offer recommendation system
10. Testing of the algorithm in production